In the Claims

1. (currently amended) A thermodynamic free walking beam engine comprising:

a) a housing cylinder having a hollow interior chamber and a first end and a second end;

b) a [[A]] first end cap secured to said first end of said housing cylinder and a second end cap secured to said second end to seal said interior chamber;

c) a pressurized low-boiling working fluid contained within said housing chamber;

d) a mass in the form of a piston that is driven from one end of said housing cylinder to the other;

e) a first heat exchanger and a second heat exchanger disposed proximal to and in direct communication with their respective end caps;

f) an external heat source disposed inferior to the lower end of said housing cylinder when in the vertical position and close enough to apply heat to said heat exchanger to increase the temperature of the proximal working fluid;

g) a first substantially horizontal, parallel output power shaft and a second substantially horizontal, parallel output power shaft; and

h) a first open pivot clamp and a second open pivot clamp fixedly disposed on the exterior of said housing cylinder and substantially offset from their respective ends thereof and arranged for engagement with their respective power shafts when said housing cylinder is in the fully horizontal position.

2. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said housing cylinder and said end caps are fabricated of a sturdy, lightweight material.

3. (original) A thermodynamic free walking beam engine as recited in claim 2, wherein said sturdy, lightweight material is carbon fiber reinforced thin wall stainless steel.

4. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said piston is fabricated of a material having significant mass.

5. (original) A thermodynamic free walking beam engine as recited in claim 4, wherein said piston material includes a steel/lead composite.

6. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said working fluid is a hydrocarbon fuel.

7. (original) A thermodynamic free walking beam engine as recited in claim 6, wherein said hydrocarbon fuel is butane.

8. (original) A thermodynamic free walking beam engine as recited in claim 6, wherein said hydrocarbon fuel is propane.

9. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said working fluid is an environmentally friendly refrigerant.

10. (original) A thermodynamic free walking beam engine as recited in claim 9, wherein said working fluid is R134A refrigerant.

11. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said output drive shafts include a one-way drive means at the pivot point to provide drive during the power stroke and a rapid low friction counter-rotation during the recovery stroke when engaged with the respective pivot clamp.

12. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said one-way drive means is a ratchet-type mechanism.

13. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said one-way drive means is a clutch-type mechanism.

14. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said heat exchangers attached to said end caps includes coiled thin-walled copper tubing.

15. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said external heat source is recovered waste heat.

16. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein said external heat source includes solar-heated water.

17. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein the operating cycle of each cylinder housing of the present invention having a four stroke cycle comprising a first power stroke, a first recovery stroke, a second power stroke and a second recovery stroke with power output only generated during the power stroke.

18. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein operation of the present invention is initiated when said housing cylinder is weighted down in the vertical position by said piston residing in said first end thereof as said external heat source applies heat to said heat exchanger which is transferring heat to said working fluid in said first end thereby creating a temperature differential between said working fluid in said first end and that in said second end and increasing the gas pressure behind said piston sufficiently to drive it upward to said second end thus developing an imbalanced condition with the weighted elevated piston beginning its rotational descent whereby the orbital descent of the housing cylinder and its engaged first pivot clamp serve to drive said one-way drive means of said first output power shaft to generate mechanical power for direct usage or for conversion to electrical energy during the first power stroke which occurs during the freefall of said housing cylinder into the horizontal position.

19. (original) A thermodynamic free walking beam engine as recited in claim 18, wherein the first recovery stroke occurs when said housing cylinder is in the horizontal position and said first and second pivot clamps are engaged with said first and second one-way drive mechanisms and their respective power shafts thereby allowing the weight of said piston distally positioned in said second end of said housing cylinder and extending beyond said second pivot clamp to force said second end to rotate downward and around said second power shaft and effectively reposition said housing cylinder into a vertical position.

20. (original) A thermodynamic free walking beam engine as recited in claim 19, wherein the second power stroke begins upon completion of said first recovery stroke wherein said second end of said vertically positioned housing cylinder is exposed to said external heat source which applies heat to said heat exchanger which is transferring heat to said working fluid in said second end thereby creating a temperature differential between said working fluid in said second end and that in said first end and increasing the gas pressure behind said piston sufficiently to drive it upward to said first end thus developing an imbalanced condition with the weighted elevated piston beginning its rotational descent whereby the orbital descent of the housing cylinder and its engaged second pivot clamp serve to drive said one-way drive means of said second output power shaft to generate mechanical power.

21. (original) A thermodynamic free walking beam engine as recited in claim 20, wherein the second recovery stroke occurs when said housing cylinder is in the horizontal position and said first and second pivot clamps are engaged with said first and second one-way drive mechanisms and their respective power shafts thereby allowing the weight of said piston distally positioned in said first end of said housing cylinder and extending beyond said first pivot clamp to force said first end to rotate downward and around said first power shaft and effectively reposition said housing cylinder into a vertical position.

22. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein a plurality of housing cylinders are set in sequence on the same drive shafts to provide a cleaner and smoother level of power output.

23. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein a plurality of housing cylinders are set in sequence on the same drive shafts to provide power for direct usage.

24. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein the high torque output of the present invention is used to mechanically pressurize a fluid for storage in an elevated reservoir to store potential energy that can be highly

regulated when released to achieve the necessary RPM's required to drive a pump or electric generator.

25. (original) A thermodynamic free walking beam engine as recited in claim 1, wherein the high torque output of the present invention is used to mechanically pressurize a fluid through a nozzle to impinge on a turbine wheel driving a generator.